The Department of Mathematics
2020–21–B term

Course Name  Introduction to Complex Analysis

Course Number  201.1.0071

Course web page  https://www.math.bgu.ac.il/en/teaching/spring2021/courses/introduction-to-complex-analysis

Lecturer  Prof. Ilan Hirshberg, <ilan@bgu.ac.il>, Office 203

Office Hours  https://www.math.bgu.ac.il/en/teaching/hours

Abstract

Requirements and grading

Course topics

1. Complex numbers, open sets in the plane.
2. Continuity of functions of a complex variable
3. Derivative at a point and Cauchy–Riemann equations
4. Analytic functions; example of power series and elementary functions
5. Cauchy’s theorem and applications.
6. Cauchy’s formula and power series expansions
7. Morera’s theorem
8. Existence of a logarithm and of a square root

Information may change during the first two weeks of the term. Please consult the webpage for updates
9. Liouville’s theorem and the fundamental theorem of algebra

10. Laurent series and classification of isolated singular points. The residue theorem

11. Harmonic functions

12. Schwarz’ lemma and applications

13. Some ideas on conformal mappings

14. Computations of integrals